Systematic meta-analysis of the association between monocyte chemoattractant protein-1 -2518A/G polymorphism and risk of tuberculosis

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ABSTRACT. Numerous studies have been conducted to investigate the association between 2518A/G polymorphisms in the monocyte chemoattractant protein-1 (*MCP-1*) gene and the risk of tuberculosis (TB). However, the results have been inconsistent and inconclusive. In this study, we performed a meta-analysis to evaluate the association between the *MCP-1* -2518A/G polymorphism and TB. The National Center for Biotechnology Information Global Cross Database and Google Scholar database were searched for relative studies. A total of 22 case-control studies that included 7332 cases and 8004 controls for the -2518A/G single-nucleotide polymorphism were identified. The results revealed an association between the *MCP-1* -2518A/G polymorphism and human TB susceptibility under a recessive model (GG *vs* GA+AA), dominant model

(GG+GA *vs* AA), and homozygote comparison (GG *vs* AA) model for the entire database. For the dominant model, the overall odds ratio was 1.34 (95% confidence interval, 1.10-1.64, P = 0.004). For the recessive model, the overall odds ratio was 1.46 (95% confidence interval, 1.15-1.86, P = 0.002). For the homozygote comparison, the overall odds ratio was 1.67 (95% confidence interval, 1.20-2.32, P = 0.002). In the subgroup analysis by ethnicity, significantly elevated risks were found in Asians and Americans, but not in Africans and Europeans. We also used the Begg and Egger tests to examine publication bias, and no major publication bias was detected. Our results indicate that there is an association between the *MCP-1* -2518A/G polymorphism and human TB susceptibility.

Key words: Meta-analysis; Monocyte chemoattractant protein-1; Tuberculosis